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WESTERN PACIFIC PELAGIC FISHERIES IN 1987

Samuel G. Pooley
Southwest Fisheries Center Honolulu Laboratory
National Marine Fisheries Service, NOAA
Honolulu, Hawaii 96822-2396

NOT A PUBLICATION

ADMINISTRATIVE REPORT H-88-11

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INTRODUCTION

This report presents summary information on the status of various pelagic fisheries in the western Pacific region of the United States for 1987. The report also serves as a module for the Western Pacific Regional Fishery Management Council's annual report for the **Pelagic Species Fishery Management Plan.** Some of the information contained in this report has been or will be presented in greater detail in other reports of the National Marine Fisheries Service (NMFS), NOAA. Information on the biological status of the pelagic management unit species (PMUS) and tunas in the region also will be presented in other reports. These reports include the appropriate scientific nomenclature for these species; this report refers to the various species by the common names used in the fishery.

This report contains information on (1) the small-scale fisheries in American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI) for such PMUS as billfish, mahimahi, ono (wahoo), and sharks; (2) the tuna longline fisheries supporting American Samoa's canneries; and (3) Hawaii's longline, tuna handline, and troll fisheries for PMUS and tunas. Most of the information for American Samoa, Guam, and the CNMI comes from the NMFS Western Pacific Fishery Information Network (WPACFIN) program, information on the fisheries supporting American Samoa's canneries comes from the NMFS monitoring program in Pago Pago conducted by the Southwest Fisheries Center, and the information for Hawaii comes from NMFS and State of Hawaii data. Data are presented in pounds throughout this report, except for the section on the fisheries supporting American Samoa's canneries. Pounds represent the local government and industry standard in this region. One metric ton (t) is composed of 2,205 lb.

DOMESTIC PELAGIC FISHERIES OF AMERICAN SAMOA, GUAM, AND THE CNMI

The pelagic fisheries of American Samoa, Guam, and the CNMI have shown substantial variability over the past 4 yr. Commercial landings are subject to the vicissitudes of economic development, which for fisheries in all three areas is dependent on the export market. Guam has shown the most sustained growth in its pelagic fisheries, whereas American Samoa and the CNMI have a mixed record. The most accessible source of information on these fisheries is the WPACFIN data base compiled by the Southwest Fisheries Center (cf. Hamm and Kassman 1986; Hamm et al. 1986; Hamm and Quach 1988). Data from WPACFIN reports are summarized in Tables 1-3. Interpretation of trends (Fig. 1) should be taken cautiously, according to provisos mentioned in the original WPACFIN reports. Average prices for PMUS and tunas are relatively low in all three areas (Fig. 2), except for the prices of mahimahi and ono, which have proven to be major export species.

Domestic processing (primarily filleting) of pelagic species (especially swordfish and marlin) for export developed rapidly in American Samoa and Guam (Table 4). Most of the fish are destined for the mainland United States, with Hawaii as a brokerage point. Data from the U.S. Food and Drug Administration (FDA) for the Honolulu Customs District (described more fully

in this report's section on Hawaii imports) show 36,000 lb of pelagic species, including tuna, arriving in Honolulu from American Samoa in 1986. Ono comprised the majority (24,800 lb) (Fig. 3). No imports from American Samoa were recorded for 1987, but the FDA monitoring program only accounted for shipments greater than $1,000. Smaller shipments may be missed by this method. (Official U.S. Customs data at the level of detail required for this report are usually not available.) Guam exported 14,000 lb of pelagic species in 1986 and 19,400 lb in 1987 (12,400 lb of ono in 1987).

FISHERIES SUPPORTING AMERICAN SAMOA CANNERIES

American Samoa has two canneries which receive fish from two major sources: U.S. tuna purse seiners which target skipjack tuna (aku) (but also catch yellowfin tuna) and foreign tuna longliners. A developing U.S. albacore troll fishery in the South Pacific off-loads much of its product in American Samoa. Some tuna caught by purse seiners and longliners are also transshipped to American Samoa from vessels off-loading in Guam and Saipan, CNMI. Some longline-caught tuna is also exported fresh (or "fresh/frozen") from American Samoa to Japan.

The NMFS sampling program in American Samoa was described recently in two reports: Honda et al. (1988) and Ito and Yamasaki (1988). The Honda et al. (1988) purse seine report is confidential because it contains commercially sensitive information.

The U.S. purse seine fleet began fishing in the South Pacific in earnest in the late 1970's. Access of U.S. purse seiners to the Exclusive Economic Zones of the South Pacific countries is now regulated by international agreement through the South Pacific Tuna Treaty signed by the United States and 15 South Pacific island countries. Under this agreement, U.S. purse seiners must report their catch and effort data to NMFS and carry observers from the South Pacific countries. However, all information obtained in the past has been entirely voluntary and frequently confidential. In 1987, 32 U.S. purse seine vessels (capacity 40,000 short tons) were operating in the central, western, and South Pacific. Landings (not all delivered to American Samoa) equaled about 120,000 t, of which about 80% were skipjack tuna. Little or no information is available on by-catch. In 1986, 30 vessels (87 trips) off-loaded in American Samoa (Honda et al. 1988).

The Japanese also have a large purse seine fleet in the Pacific islands region (approximately 40-50 vessels), with recent landings of 150,000 t (of which over 75% are skipjack tuna) (Doulman 1987). These vessels do not normally off-load in American Samoa, although some of their catch may be transshipped from American Samoa, Guam, or the CNMI.

In 1986, a foreign longline tuna fleet consisting of 127 vessels (233 trips) from Taiwan, South Korea, and Tonga used American Samoa as a base of operations. Albacore comprised 74% of the catch in 1986. Yellowfin and bigeye tunas comprised 10 and 4%, respectively (Table 5). Seventeen of the vessels are now fishing for the sashimi market rather than for the canneries

(cf. Ito and Yamasaki 1988). Total landings are confidential, but they have ranged around 20,000 t in recent years.

In American Samoa, miscellaneous species comprised 12% of the long-liners' landings, of which 6% were PMUS. Blue marlin was the largest component, equaling 4% of the total catch (Fig. 4). These volumes and percentages were consistent with the 1982-86 average. No mahimahi was reported off-loaded in American Samoa, but some may have been bartered between vessel crews and local residents.

HAWAII PELAGIC FISHERIES

Hawaii's tuna fisheries have changed dramatically in the past 10 yr, with a tremendous decline in the skipjack tuna fishery (including the closure of Hawaii's only tuna cannery) and a rapid rise of the tuna hand-line and longline fisheries. Hawaii's troll fisheries for fresh mahimahi and ono have also risen dramatically. However, data on these fisheries must be pieced together from a variety of sources because no single source of information can be considered adequate.

My best general estimates of Hawaii's pelagic landings in 1987 are outlined in Table 6. My estimates show pelagic landings in Hawaii at 15 million lb (6,845 t) in 1987 (Fig. 5). These landings are valued at $24.8 million. Major PMUS landings were 2.8 million lb ($4.6 million). Mahimahi landings were the largest in value ($1.7 million) although only equal to blue marlin in weight.

Tuna landings were 12 million lb ($20.0 million), of which yellowfin tuna was the largest component (5.6 million lb worth $7.5 million). Bigeye tuna constituted a much smaller volume but a much higher price (Fig. 6) and, thus, the second largest revenue ($7.1 million).

These figures are derived from the NMFS Fishery Management Research Program which monitors the Hawaii fresh seafood wholesale market on a regular basis. From this monitoring program, it is possible to estimate commercial landings of many pelagic species independently of the State of Hawaii's commercial landings reporting system. However, since the monitoring program covers only a sample of the entire market, the expansion (raising) factors may overestimate or underestimate Hawaii's landings and the size of the entire market (which includes imported fresh fish). An important limitation is that the NMFS market monitoring program for pelagic species only began sampling the Hawaii wholesale markets in 1986. Therefore, the expansion factors are not based on a current statistical grounding and are instead based on information from earlier market research and market information. The raising factors to expand our samples to an estimate for all Hawaii landings range from 1.11 to 3.0. The NMFS will be adding new data sources for 1988 landings and may undertake a market survey to provide a more consistent basis for extrapolation.

Preliminary data of the State of Hawaii Division of Aquatic Resources (HDAR) for 1987 (Table 7a) report landings below our estimates. The HDAR reports indicate 7.1 million lb (3,200 t) of tuna landings worth $9.0

million and 1.7 million lb of PMUS worth $2.9 million. In some cases, the differences between the NMFS estimates and the HDAR reports are relatively small (20% for skipjack tuna and 7% for ono), but in other cases, the differences are large (tenfold for bigeye tuna and sevenfold for striped marlin). The overall difference between the NMFS estimates and the HDAR figures is 70% for tuna and 84% for PMUS. I believe the biggest differences are in terms of the tuna longline fleet, which targets bigeye tuna and also catches a large amount of striped marlin, and the small-boat fleets using handline gear off the neighboring islands (non-Oahu islands).

Long-term growth trends (Table 7b; Fig. 7) in the Hawaii pelagic fishery are somewhat disguised by the reporting problems in the HDAR data: These problems became significant in 1978, just as the skipjack tuna fishery began to decline and the tuna longline, tuna handline, and mahimahi-ono troll fisheries began to grow. The data presented in Table 7b are not adjusted to account for these reporting problems. However, I have made preliminary adjustments to HDAR data that indicate a long-term growth in the nonskipjack tuna segment of commercial landings (all species, not just pelagic species) of 137% from 1970 to 1987 (using moving averages), compared to the HDAR trend of 86% growth.

The NMFS market monitoring program makes possible a differentiation between fish caught by longline and pole-and-line gear and fish caught by other gear types, but does not allow for a differentiation between fish caught by tuna handline or trolling gear (Table 8). Combining our estimates with the HDAR gear figures for 1986 provides an "adjusted" view of catch by gear (Fig. 8). These are, at best, rough estimates which require further research into the HDAR reporting system and the NMFS market monitoring system. The NMFS data for 1987 show that the longline fleet catches 94% of the total bigeye tuna, 53% of the marlins, and only 10% of the yellowfin tuna, which are caught primarily by trolling and handline gears. Mahimahi and ono are caught primarily by trolling gear.

The HDAR data for 1986 suggest that longliners catch 5% of the yellowfin tuna and 96% of the bigeye tuna. These results are consistent with the NMFS estimates. However, the HDAR data show that longliners catch only 15% of the marlins; this result is inconsistent with the NMFS estimates (Fig. 8).

The HDAR data also provide information on the breakdown of catch by trolling, handline, and other nonlongline gears: 36% of the yellowfin tuna **not** caught by longliners are caught by trollers, 7% are caught by skipjack tuna boats, and 57% are caught by various handline gears; 91% of the PMUS **not** caught by longliners are caught by trolling gear and 9% by handline gear.

The NMFS has not compiled enough information on vessel patterns in the PMUS fisheries to undertake any analysis of fleet activity.

HAWAII IMPORTS AND EXPORTS

The NMFS Market News Service provides monthly and annual summaries of Hawaii imports of fishery products. The data are compiled by the NMFS

Western Pacific Program Office from the FDA inspection program. These data provide a more complete species breakdown of Hawaii than do U.S. Customs data, but they are incomplete because lots valued at <$1,000 are not recorded and the invoices for lots pulled for inspection are not available. The data cover imports to Hawaii from all sources outside the Honolulu Customs area, including American Samoa, Guam, and CNMI. Data for 1987 are preliminary. Furthermore, because of a sampling problem, annual totals for 1987 needed to be extrapolated. Table 9 does not distinguish product form, whether round or fillet. The data refer only to fresh/frozen imports and not to any processed products. Not all of the imported pelagic fish remain in Hawaii; some may be reexported to the mainland United States by local wholesalers and brokers.

The NMFS Market News Service data indicate that imports account for approximately 48% of the PMUS market and 8% of the tuna market. These percentages apply only to imports from foreign countries that make their first landing in the United States in Hawaii. These data do not reflect imports, such as large quantities of frozen mahimahi, transshipped through locations in the mainland United States or fish, such as yellowfin tuna from Florida and swordfish from California, that are caught in the mainland U.S. fisheries and sold in Hawaii.

The NMFS Marine News Service data do not provide prices; however, if the NMFS monitoring program's average price for pelagic species is applied, ignoring species composition and product form, then the 1987 imports would be worth approximately $8.3 million or 25% of the overall market (Fig. 9).

Hawaii's export market for pelagic species has developed even more dramatically than its imports. Bigeye tuna are now shipped directly to Japan on a regular basis, and yellowfin tuna and mahimahi are sold throughout the mainland United States. However, I do not have figures on these exports.

RESEARCH

In the past 5 yr, the NMFS Honolulu Laboratory has conducted a number of economic studies into various Hawaii pelagic fisheries. Two reports were prepared on Hawaii's charter boat fishery (Samples et al. 1984; Samples and Schug 1985). Hawaii's skipjack tuna industry was thoroughly explored in a series of papers compiled by Boggs and Pooley (1987), with economic implications explained by Hudgins and Pooley (1987). Costs and earnings in Hawaii's longline tuna fleet were surveyed (Lyman and Hawaii Opinion 1984), and a series of studies on small-boat fisheries is being concluded and will be reported by Pooley (1988). Finally, the economic value of Hawaii's recreational fishery was studied by Meyer (1987), who also estimated the recreational catch.

These studies have not yet provided a comprehensive analysis of Hawaii's pelagic fisheries. This is partly because the fisheries themselves are disparate and changing rapidly and partly because more attention was focused on fisheries placed under domestic regulation (e.g., lobster and bottom fish).

The Honolulu Laboratory's Fishery Management Research Program will be looking into the economics of Hawaii's longline fishery over the next 2 yr.

A research proposal has been prepared for undertaking an up-to-date survey of Hawaii's seafood marketing system as a means for more accurately estimating total domestic landings and overall market activity. The State of Hawaii and the Western Pacific Regional Fishery Management Council are undertaking a cooperative project to design and conduct a small-boat fisheries survey, which may provide consistent estimates of catches in Hawaii's recreational and part-time commercial fisheries.

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Table 1.--Pelagic species landings (in pounds) in American Samoa, by domestic fleetm 1982-86 (revenue and price are in dollars) (NES = not enumerated separately; PMUS = pelagic management unit species).

						Revenue	Price
Pelagic species	1982	1983	1984	1985	1986	1986	1986
Swordfish	0	0	0	163	0		NA
Blue marlin	315	1,083	5,675	2,790	4,171	4,559	1.09
Sailfish	127	74	989	2,744	107	107	1.00
Marlin (NES)	0	0	0	0	0	0	NA
Subtotal	442	1,157	6,664	5,697	4,278	4,666	1.09
Sharks	45	293	723	1,026	738	763	1.03
Rainbow runner	24	655	2,305	558	190	201	1.06
Ono (wahoo)	113	632	1,637	2,357	2,311	3,249	1.41
Mahimahi	745	1,442	1,807	7,394	10,388	15,785	1.52
Subtotal	858	2,074	3,444	9,751	12,699	19,034	1.50
Total PMUS	1,369	4,179	13,136	17,032	17,905	24,664	1.38
Skipjack tuna	15,005	54,841	114,926	35,236	120,194	88,630	0.74
Dogtooth tuna	170	917	2,627	974	2,278	2,682	1.18
Yellowfin tuna	6,933	18,956	58,609	35,707	48,283	49,227	1.02
Bigeye tuna	0	0	0	3,528	0	0	NA
Kawakawa	109	368	769	1,125	29	29	1.00
Albacore	0	10,904	20,390	24,831	0	0	NA
Tuna (NES)	18						NA
Subtotal	22,235	85,986	197,321	101,401	170,784	140,568	0.82
Total	23,604	90165	210457	118,433	188,689	165,232	0.88

Source: WPACFIN data (Hamm and Quach 1988).

Table 2.--Pelagic species landings (in pounds) in Guam, 1982-86 (revenue and price in dollars) (NES = not enumerated separately; PMUS = pelagic management unit species).

						Revenue	Price
Pelagic species	1982	1983	1984	1985	1986	1986	1986
Swordfish	0	0	0	0	0	0	NA
Blue marlin	0	0	0	0	0	0	NA
Sailfish	244	0	426	354	959	1,359	1.42
Marlin (NES)	13,634	654	29,905	20,581	37,930	35,178	0.93
Subtotal	13,878	654	30,331	20,935	38,889	36,537	0.94
Sharks	1,130	257	521	237	493	277	0.56
Rainbow runner	398	68	584	816	878	1,313	1.50
Ono (wahoo)	14,479	3,585	40,969	65,040	39,012	75,626	1.94
Mahimahi	34,118	13,518	20,336	45,828	63,244	101,602	1.61
Subtotal	48,597	17,103	61,305	110,868	102,256	177,228	1.73
Total PMUS	64,003	18,082	92,741	132,856	142,516	215,355	1.51
Skipjack tuna	30,384	2,658	57,328	26,724	24,143	23,028	0.95
Dogtooth tuna	2,354	165	3,438	5,980	5,322	7,435	1.40
Yellowfin tuna	30,722	1,328	39,441	44,395	27,775	50,140	1.81
Bigeye tuna	0	0	0	0	0	0	NA
Kawakawa	0	0	0	5	0	0	NA
Albacore	0	0	0	0	0	0	NA
Tuna (NES)	387	30	40	0	0	0	NA
Subtotal	63,847	4,181	100,247	77,104	57,240	80,603	1.41
Total	127,850	22,263	192,988	209,960	199,756	295,958	1.48

Source: WPACFIN data (Hamm and Quach 1988).

Table 3.--Pelagic species landings (in pounds) in the Northern Mariana Islands, 1982-86 (revenue and price in dollars) (NES = not enumerated separately; PMUS = pelagic management unit species).

						Revenue	Price
Pelagic species	1982	1983	1984	1985	1986	1986	1986
Swordfish	0	0	0	0	0	0	NA
Blue marlin	0	0	0	0	0	0	NA
Sailfish	0	47	0	61	91	114	1.25
Marlin (NES)	10	3,029	1,235	1,488	2,123	2,223	1.05
Subtotal	10	3,076	1,235	1,549	2,214	2,337	1.06
Sharks	30	0	0	0	0	0	NA
Rainbow runner	3,136	818	527	516	654	842	1.29
Ono (wahoo)	6,123	7,008	11,269	14,600	7,250	9,420	1.30
Mahimahi	12,468	11,150	6,090	10,363	14,236	16,632	1.17
Subtotal	18,591	18,158	17,359	24,963	21,486	26,052	1.21
Total PMUS	21,767	22,052	19,121	27,028	24,354	29,231	1.20
Skipjack tuna	65,220	146,729	232,674	141,909	203,489	231,195	1.14
Dogtooth tuna	6,104	1,846	2,627	2,590	3,099	4,240	1.37
Yellowfin tuna	8,456	17,024	15,664	9,972	13,533	18,549	1.37
Bigeye tuna	0	0	0	0	0	0	NA
Kawakawa	0	0	0	0	0	0	NA
Albacore	0	0	0	0	0	0	NA
Tuna (NES)	405	0	0	0	0	0	NA
Total tuna	80,185	165,599	250,965	154,471	220,121	253,984	1.15
Total	101,952	185,651	270,086	181,499	244,475	283,215	1.16

Source: WPACFIN data (Hamm and Quach 1988).

Table 4.--American Samoa and Guam exports of pelagic species to Hawaii, 1984-87 (PMUS = pelagic management unit species).

Pelagic species	1987[a]	1986	1985	1984
American Samoa				
Tuna	0	9,740	10,370	0
Mahimahi	0	0	1,432	0
Ono (wahoo)	0	24,800	1,489	1,405
Other PMUS	0	0	0	0
Total	0	34,540	13,291	1,405
Guam				
Tuna	4,766	5,239	3,551	0
Mahimahi	0	3,701	9,363	6,080
Ono	12,393	5,204	11,977	6,764
Other PMUS	751	0	154	0
Total	17,910	14,144	25,045	12,844

[a]Extrapolated from 11-mo sample.

Source: National Marine Fisheries Service Market News (1984, 1985, 1986, 1987).

Note: Imports recorded in Hawaii by the Food and Drug Administration include only shipments valued over $1,000. Therefore some imports may be excluded from this table.

Table 5.--Species composition of tuna and billfish off-loaded in American Samoa by the foreign longline fleet, 1986.

Species	Percent total landings
Striped marlin	0.1
Swordfish	0.8
Sailfish and spearfish	0.7
Ono (wahoo)	0.3
Skipjack tuna	1.4
Large bigeye tuna	1.3
Other	3.1
Subtotal	11.6
Albacore	73.5
Yellowfin tuna	10.4
Bigeye tuna	4.5
Subtotal	88.4
Total	100.0

Table 6.--Pelagic species landings (in pounds) in Hawaii, imports, and total market, 1987, as estimated by the National Marine Fisheries Service (revenue and price are in dollars) (PMUS = pelagic management unit species).

	Hawaii landings				Imports	Total
Pelagic species	Caught	Sold	Revenue	Price	Sold	Sold
Bigeye tuna	1,900,701	1,874,015	7,139,877	3.81	98,949	1,972,964
Yellowfin tuna	5,564,324	5,252,755	7,469,578	1.42	474,548	5,727,303
Skipjack tuna	4,144,802	4,046,228	4,653,163	1.15	353,421	4,399,649
Albacore	355,945	351,394	490,176	1.39	1,277	352,671
Other tuna	16,722	10,159	22,640	2.23	53,958	64,117
Subtotal	11,982,495	11,534,551	19,775,434	1.71	982,153	12,516,704
Blue marlin	806,264	744,164	740,754	1.00	0	744,164
Striped marlin	645,489	606,758	807,346	1.33	0	606,758
Spearfish and swordfish	173,008	160,851	400,532	2.49	0	160,851
Subtotal	1,624,761	1,511,773	1,948,632	1.29	6,116	1,517,889
Mahimahi	807,962	768,761	1,689,457	2.20	2,404,790	3,173,551
Ono (wahoo)	384,299	362,647	992,752	2.74	144,038	506,685
Subtotal	1,192,261	1,131,408	2,682,210	2.37	2,548,828	3,680,236
Major PMUS species	2,817,022	2,643,182	4,630,842	1.75	2,554,944	5,198,126
Other pelagic	291,617	280,259	375,968	1.34	0	280,259
Total	15,091,134	14,457,992	24,782,244	1.71	3,537,097	17,995,089

Table 7a.--Hawaii Division of Aquatic Resources landings (in pounds caught and sold), 1987 (revenue and price in dollars) (PMUS = pelagic management unit species).

Pelagic species	Caught	Sold	Revenue	Price
Yellowfin tuna	3,358,619	3,170,556	4,540,670	1.43
Albacore	29,329	28,954	37,254	1.29
Bigeye tuna	197,288	194,518	561,876	2.89
Subtotal	3,585,236	3,394,028	5,139,800	1.51
Skipjack tuna	3,448,785	3,366,764	3,869,532	1.15
Other tuna	24,082	14,631	15,264	1.04
Total all tuna	7,058,103	6,775,423	9,024,596	1.33
Striped marlin	94,346	88,685	121,696	1.37
Blue marlin	521,815	481,624	429,063	0.89
Spearfish and swordfish	37,214	34,599	63,919	1.85
Mahimahi	630,897	600,287	1,365,202	2.27
Ono (wahoo)	360,773	340,447	927,847	2.73
Other PMUS[a]	44,572	42,836	30,646	0.72
Total all PMUS	1,689,617	1,588,478	2,938,373	1.85
Total	8,747,720	8,363,901	11,962,969	1.43

[a]Estimated from previous year's share.

Table 7b.--Trends in Hawaii pelagic landings (in pounds), 1970-87 (Hawaii Division of Aquatic Resources data).

Year	Total	Skipjack tuna	Other tuna	Total tunas	Billfish	Mahimahi-ono (wahoo)
1970	9,274,504	7,351,096	1,202,143	8,570,864	583,206	120,434
1971	15,186,761	13,340,812	1,353,011	14,722,401	310,356	154,004
1972	12,759,117	10,917,378	1,347,874	12,301,805	229,195	228,117
1973	12,413,297	10,751,129	1,208,670	11,992,279	230,889	190,129
1974	9,564,237	7,436,153	1,586,187	9,057,114	323,133	183,990
1975	7,870,080	5,054,178	2,161,703	7,281,759	354,146	234,175
1976	12,969,477	9,796,188	2,346,472	12,234,042	426,663	308,772
1977	11,421,919	7,750,335	2,680,100	10,527,133	521,038	373,748
1978	11,215,903	6,794,086	3,277,002	10,149,594	740,569	325,740
1979	8,417,779	5,135,242	2,285,742	7,467,316	582,692	367,771
1980	8,016,028	4,087,646	2,815,611	6,951,543	559,389	505,096
1981	8,334,705	4,124,160	3,097,655	7,259,270	571,891	503,544
1982	6,129,656	2,827,580	2,266,225	5,127,999	567,451	434,206
1983	6,546,792	2,761,636	2,741,917	5,526,842	513,849	506,101
1984	7,112,983	3,652,866	2,408,095	6,095,810	492,802	524,371
1985	5,879,113	2,105,144	2,652,036	4,769,475	433,451	676,187
1986	8,196,723	2,342,610	4,262,017	6,628,866	665,403	902,454
1987	8,679,066	3,448,785	3,585,236	7,034,021	653,375	991,670

Table 8.--National Marine Fisheries Service (NMFS) estimates of Hawaii pelagic species landings (pounds and percentages) by gear type in 1987 and Hawaii Division of Aquatic Resources (HDAR) estimates of composition (percentages) in 1986.

Pelagic species	Total	Longline	Troll	Handline[a]	Pole and line
			1987 NMFS		
Bigeye tuna	1,900,701	1,721,609	139,905	39,188	0
Yellowfin tuna	5,564,324	559,532	1,822,371	2,831,923	350,499
Skipjack tuna	4,144,802	3,186	424,417	45,048	3,672,153
Albacore	355,945	314,624	38,149	3,172	0
Other tuna	16,722	77	4,910	249	11,486
Subtotal	11,982,495	2,599,027	2,429,027	2,919,580	4,034,138
Blue marlin	806,264	103,386	667,734	35,144	0
Striped marlin	645,489	569,381	71,541	4,566	0
Other billfish	173,008	153,100	14,733	5,176	0
Subtotal	1,624,761	825,867	754,008	44,887	0
Mahimahi	807,962	44,051	672,242	91,669	0
Ono (wahoo)	384,299	50,606	303,661	30,032	0
Other pelagics	291,617	217,000	68,063	6,554	0
Total	15,091,134	3,736,550	4,227,723	3,092,723	4,034,138
	Percent pelagic landings[b]		**Percent of species group**		
Tuna	79.4	21.7	20.3	24.4	33.7
Billfish	10.8	50.8	46.4	2.8	0
Mahimahi-ono	7.9	7.9	81.8	10.2	0
Total		24.8	28.0	20.5	26.7
			1986 HDAR		
Tuna	85.3	33	19	23	26
Billfish	6.3	15	79	6	0
Mahimahi-ono	8.5	2	87	10	1
Total		29	28	21	22
			Excluding longline landings		
Tuna	80.7		28	34	38
Billfish	7.5		93	7	0
Mahimahi-ono	11.7		89	10	1
Total			40	29	31

[a]Handline includes ika shibi, palu ahi, other handline gear, and miscellaneous gears.

[b]Totals may not equal 100% because of rounding or excluding a small percentage of "other gears or pelagic species."

Table 9.--Hawaii imports of pelagic species (in pounds), 1984-87.

Pelagic species	1984	1985	1986	1987[a]
Mahimahi	1,873,383	3,210,740	3,195,064	2,711,958
Swordfish	32,586	0	15,924	5,519
Ono (wahoo)	29,169	451,661	85,213	130,887
Subtotal	1,935,138	3,662,401	3,296,201	2,848,364
Bonito	0	6,749	101,614	32,121
Albacore	0	107	3,390	1,153
Bigeye tuna	7,963	17,045	16,784	100,683
Bluefin tuna	1,056	0	0	3,858
Skipjack tuna	65,155	339,164	622,521	320,614
Yellowfin tuna	28,925	119,882	170,447	478,303
Tuna (unclassified)	12,643	12,503	19,632	25,140
Subtotal	115,742	495,450	934,388	961,872
Total	2,050,880	4,157,851	4,230,589	3,810,236

[a]Extrapolated from 11-mo sample.

Source: National Marine Fisheries Service Market News (1984, 1985, 1986, and 1987).

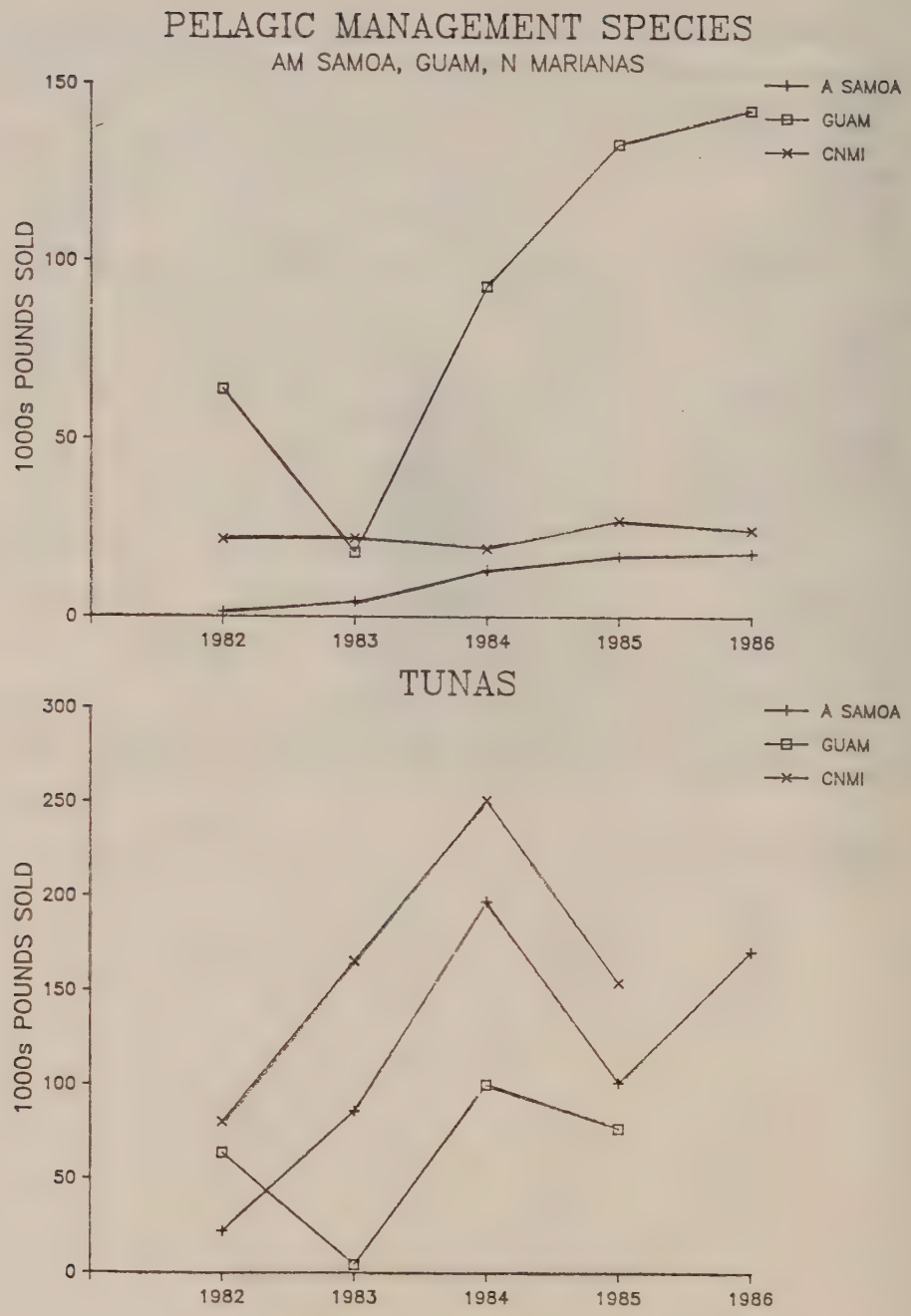

Figure 1.--Recent trends in pelagic landings for American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands (CNMI), 1982-86.

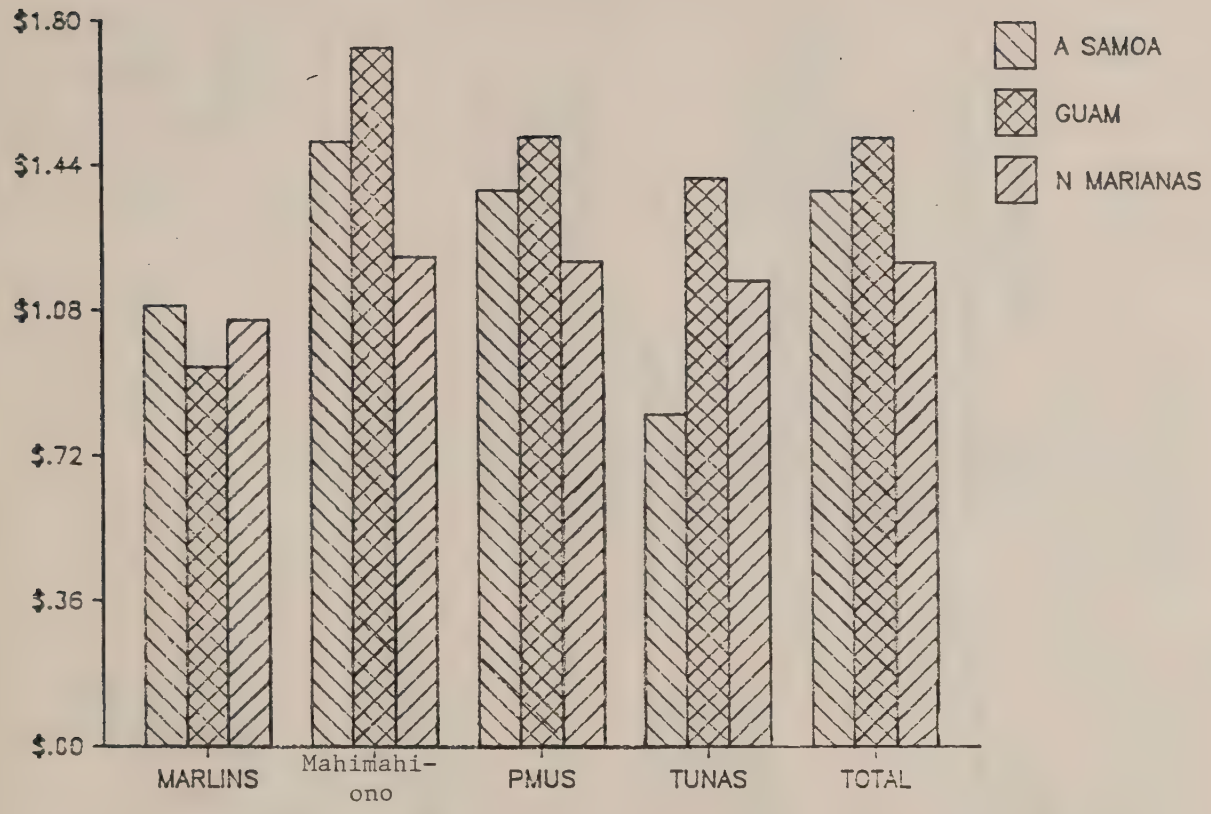

Figure 2.--Commercial fish prices for American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands, 1986 (PMUS = pelagic management unit species).

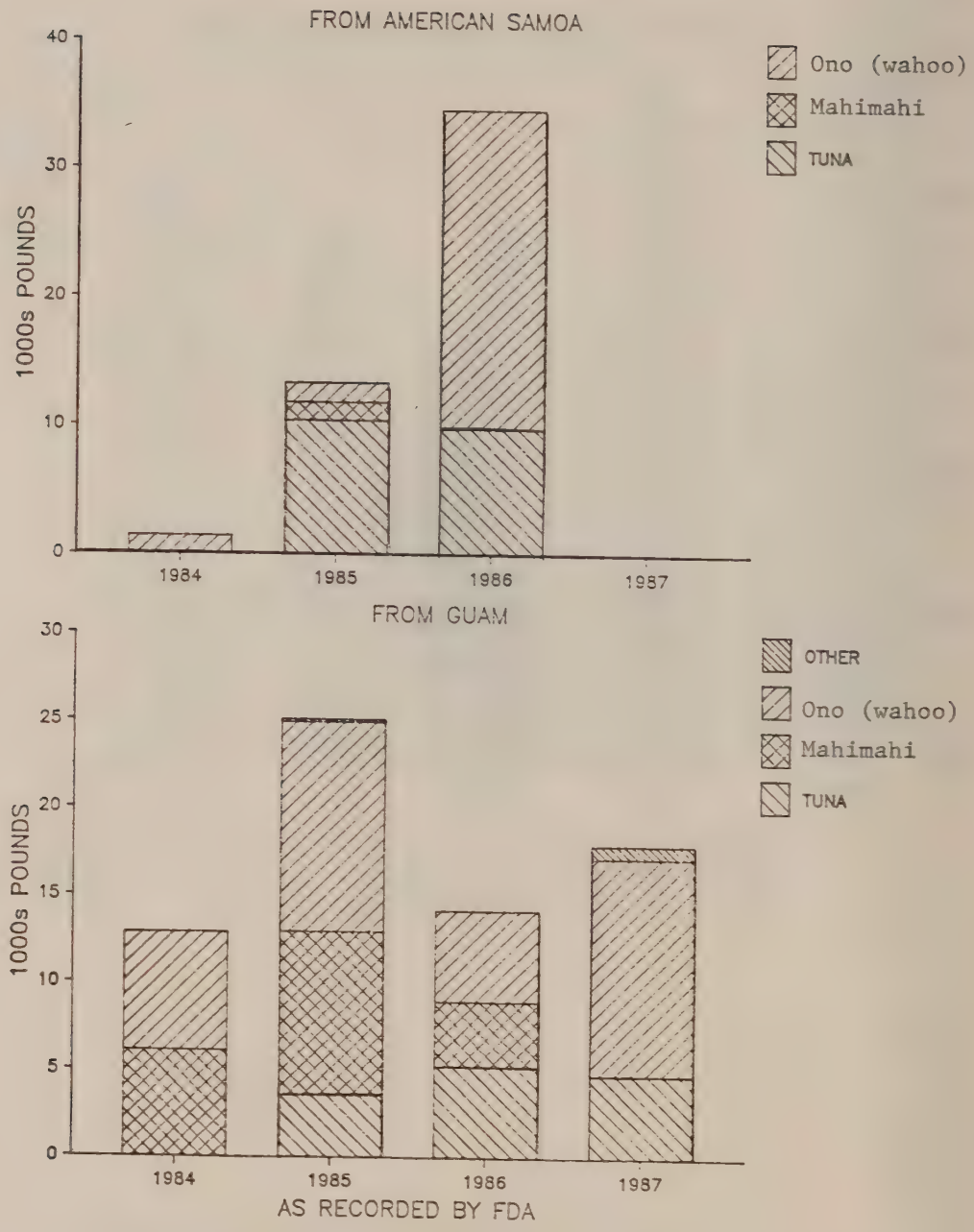

Figure 3.--American Samoa and Guam exports to Hawaii, 1987-84. (FDA = Food and Drug Administration).

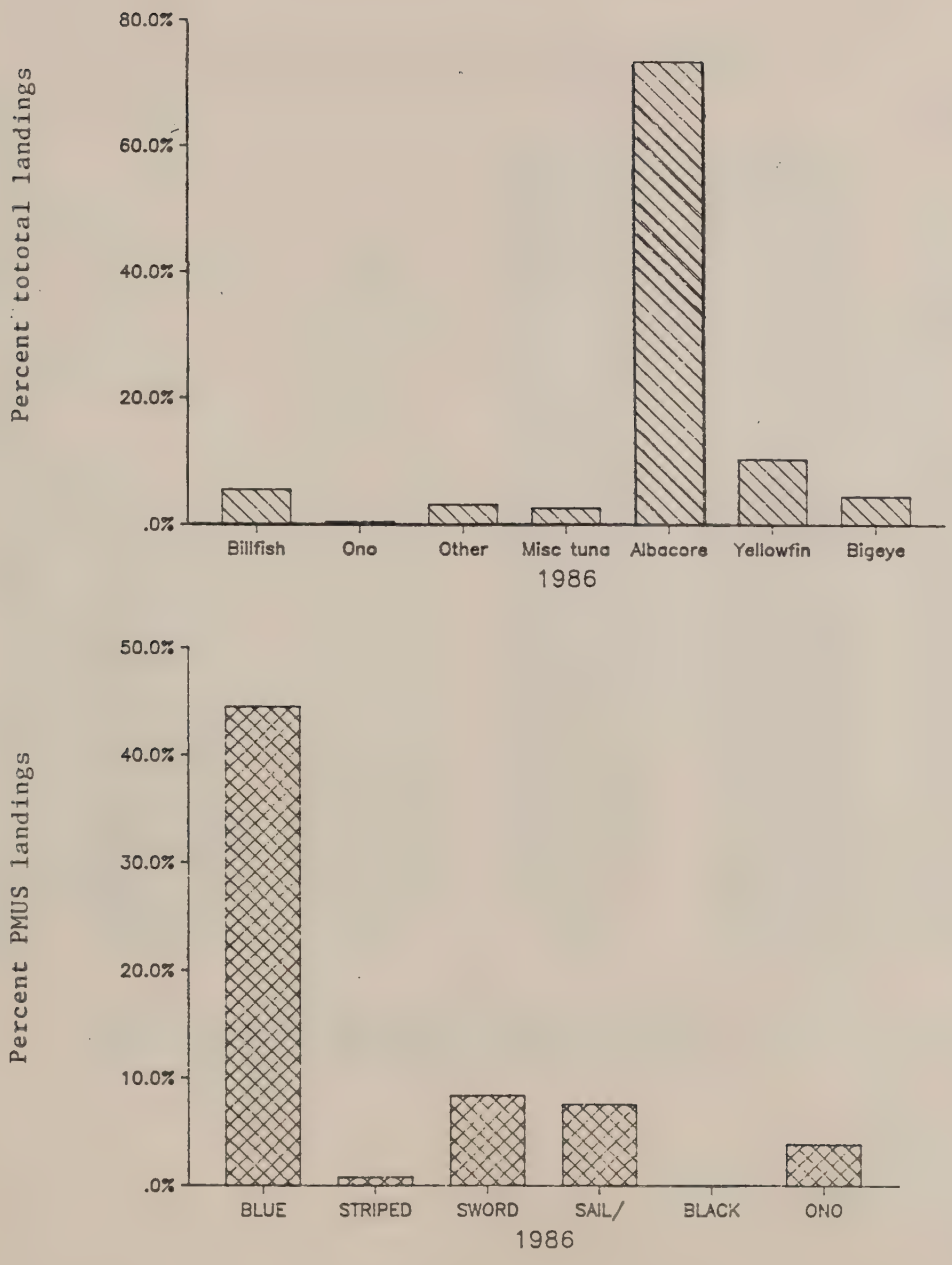

Figure 4.--American Samoa longline fishery, species composition.

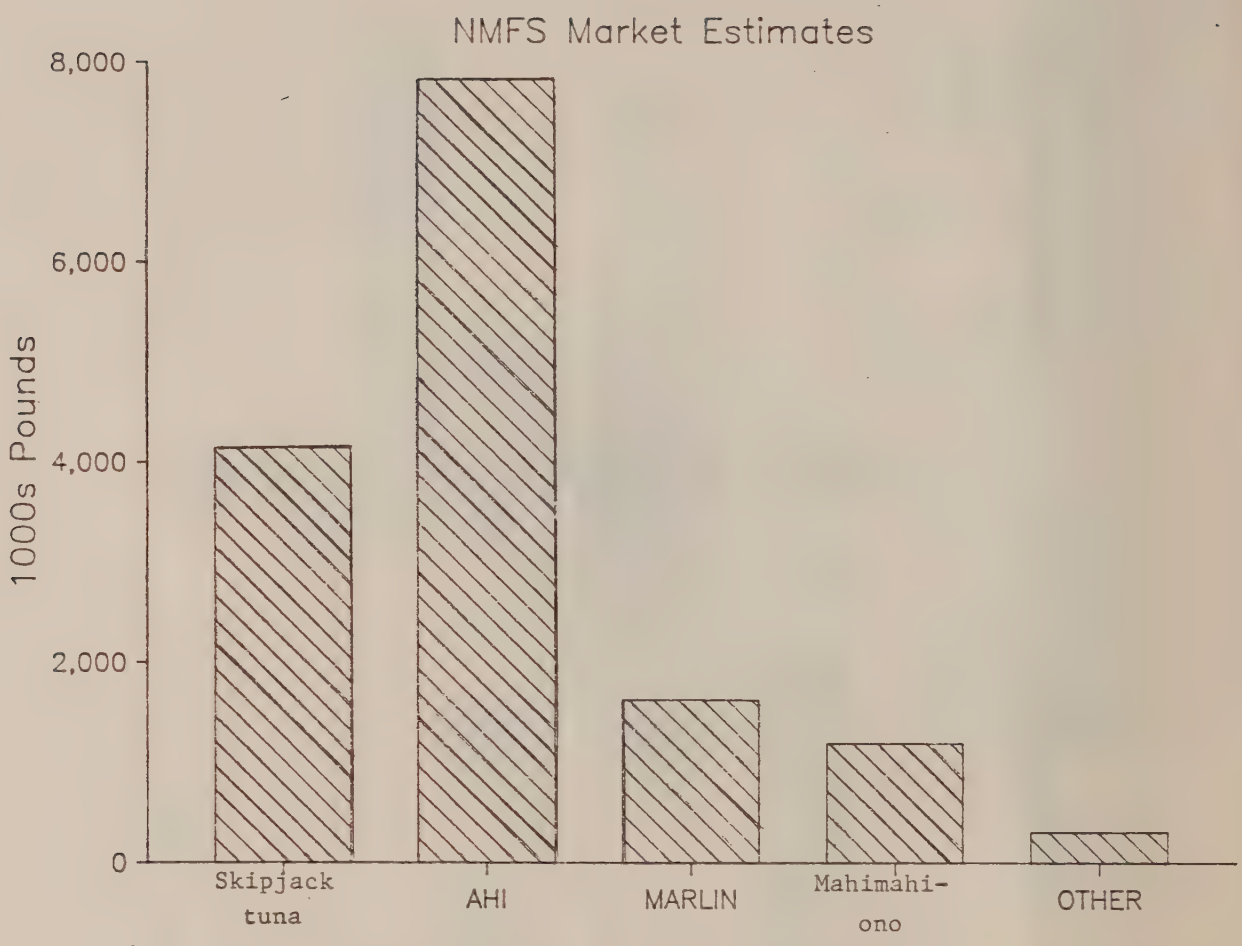

Figure 5.--Hawaii pelagic landings, 1987.
(ahi = albacore, bigeye, and yellowfin tuna).

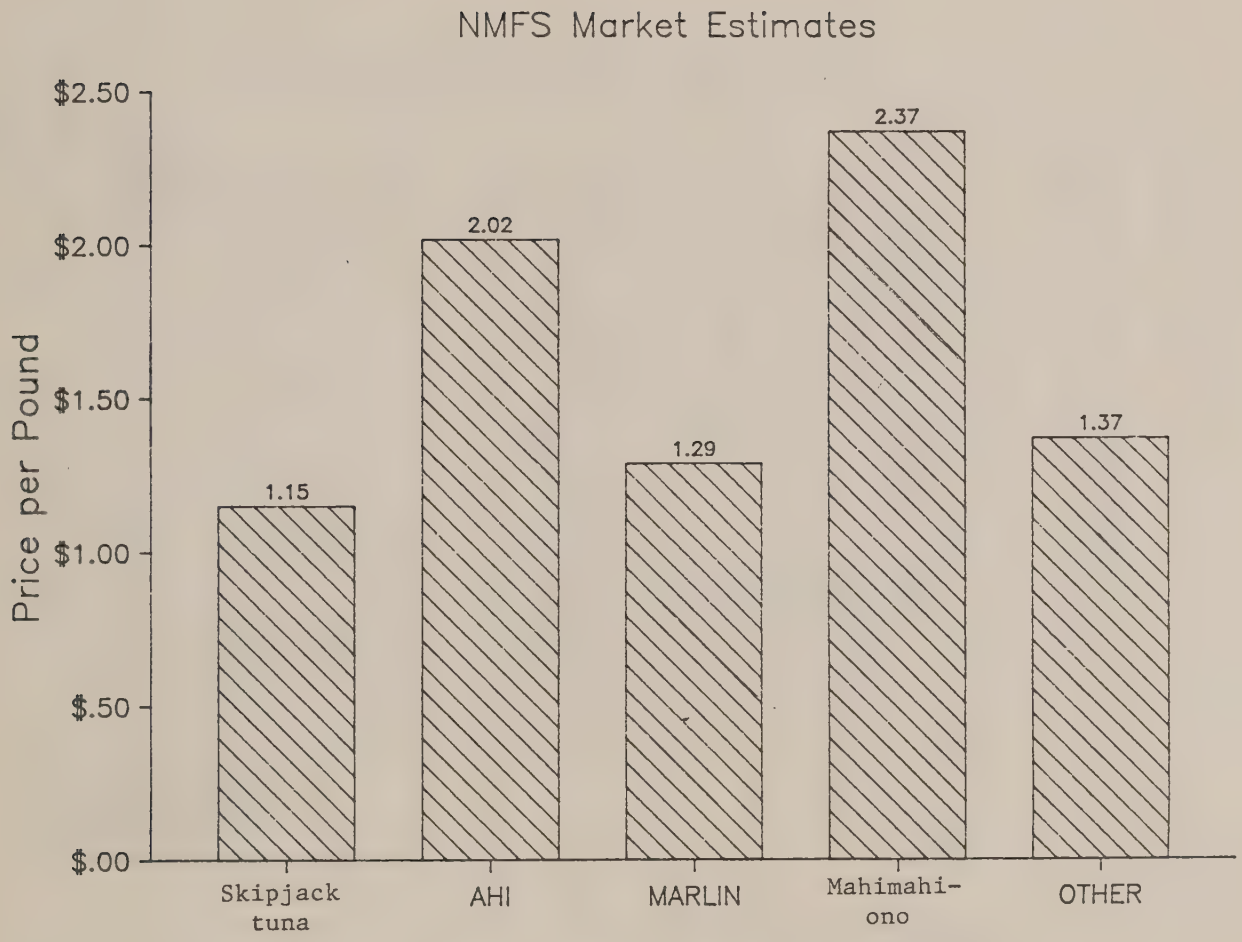

Figure 6.--Hawaii pelagic prices, 1987 (ahi = albacore, bigeye, and yellowfin tuna).

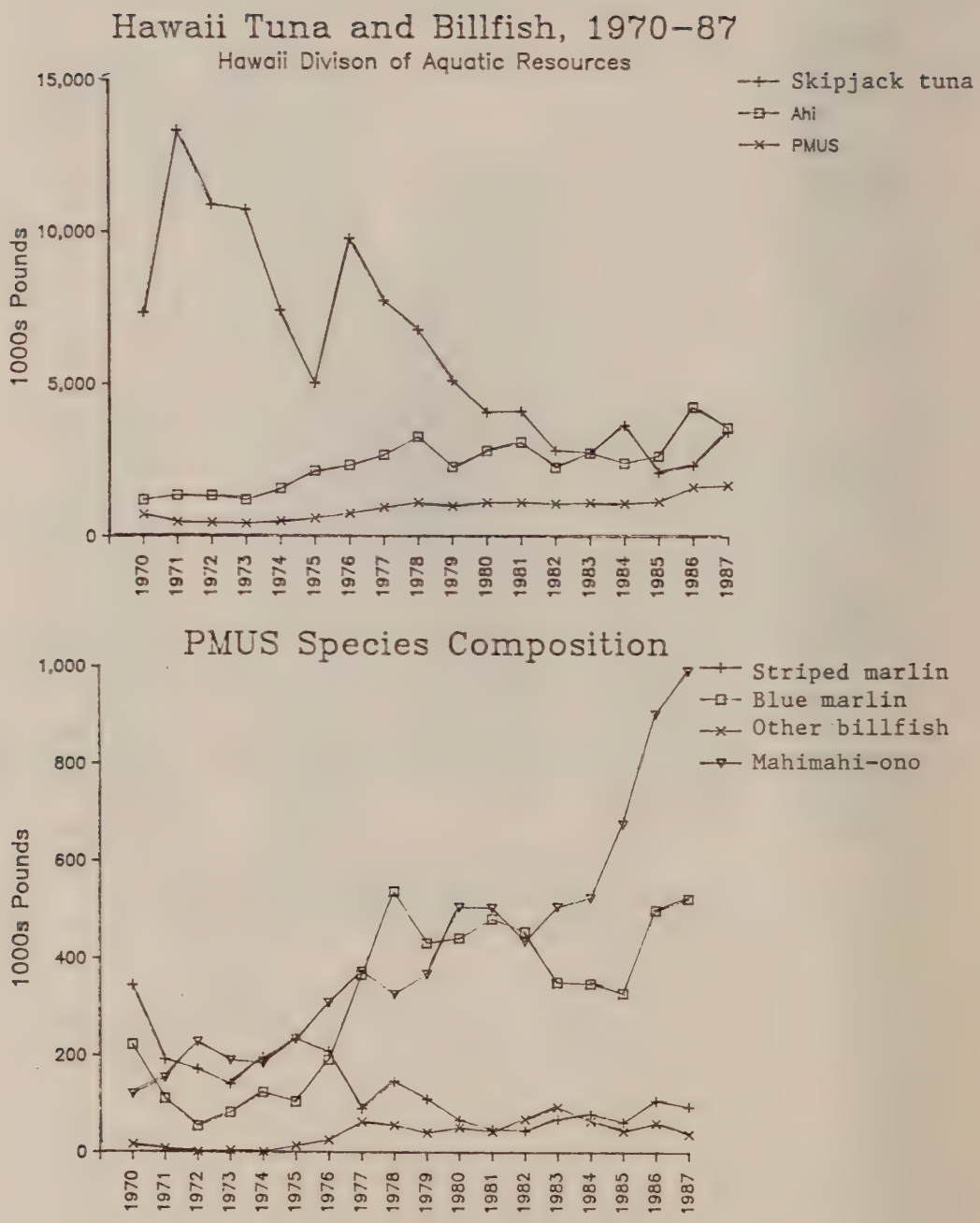

Figure 7.--Hawaii pelagic landings, 1970-87 (data of the Division of Aquatic Resources) (ahi = albacore bigeye, and yellowfin tuna).

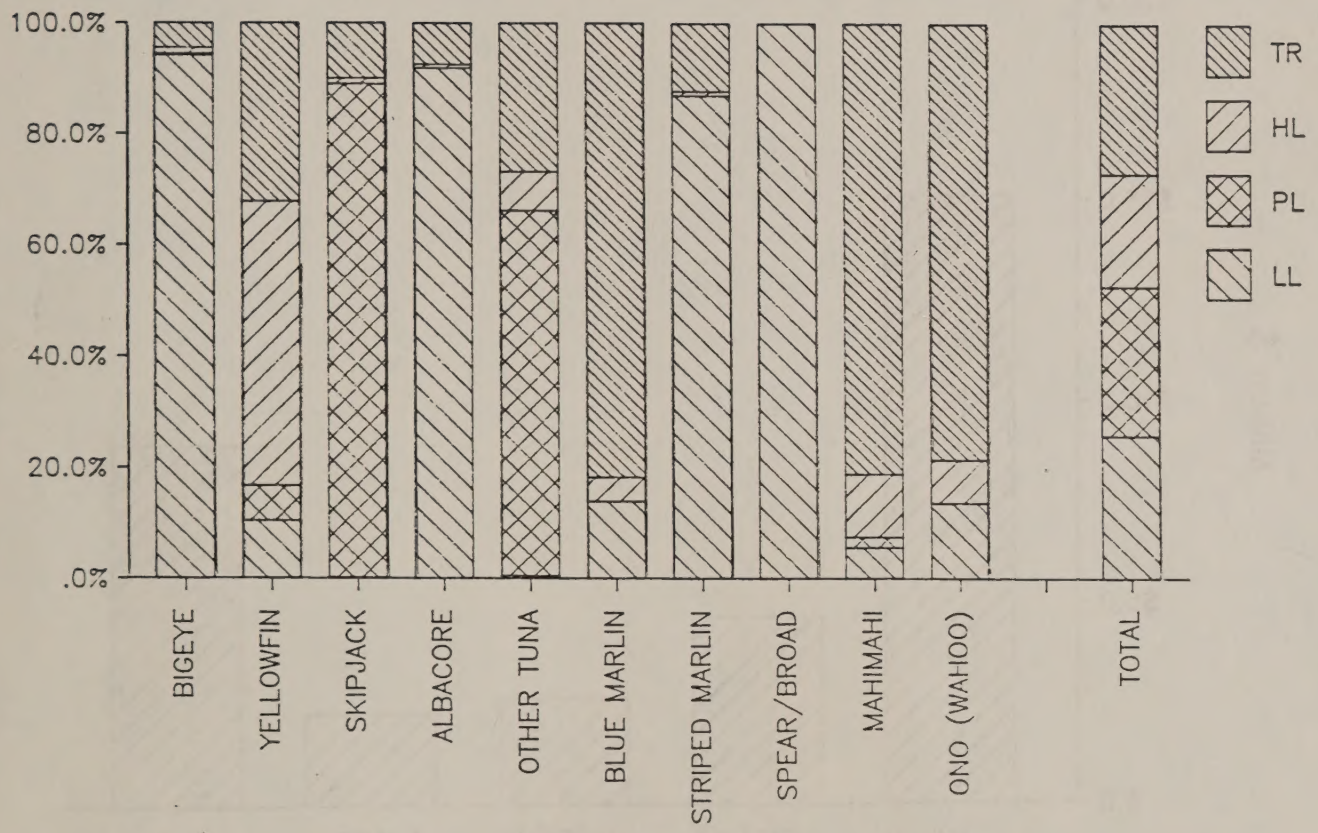

Figure 8.--Hawaii pelagic landings by gear type, 1986 and 1987 (TR = trolling, HL = handline, PL = pole and line, LL = longline).

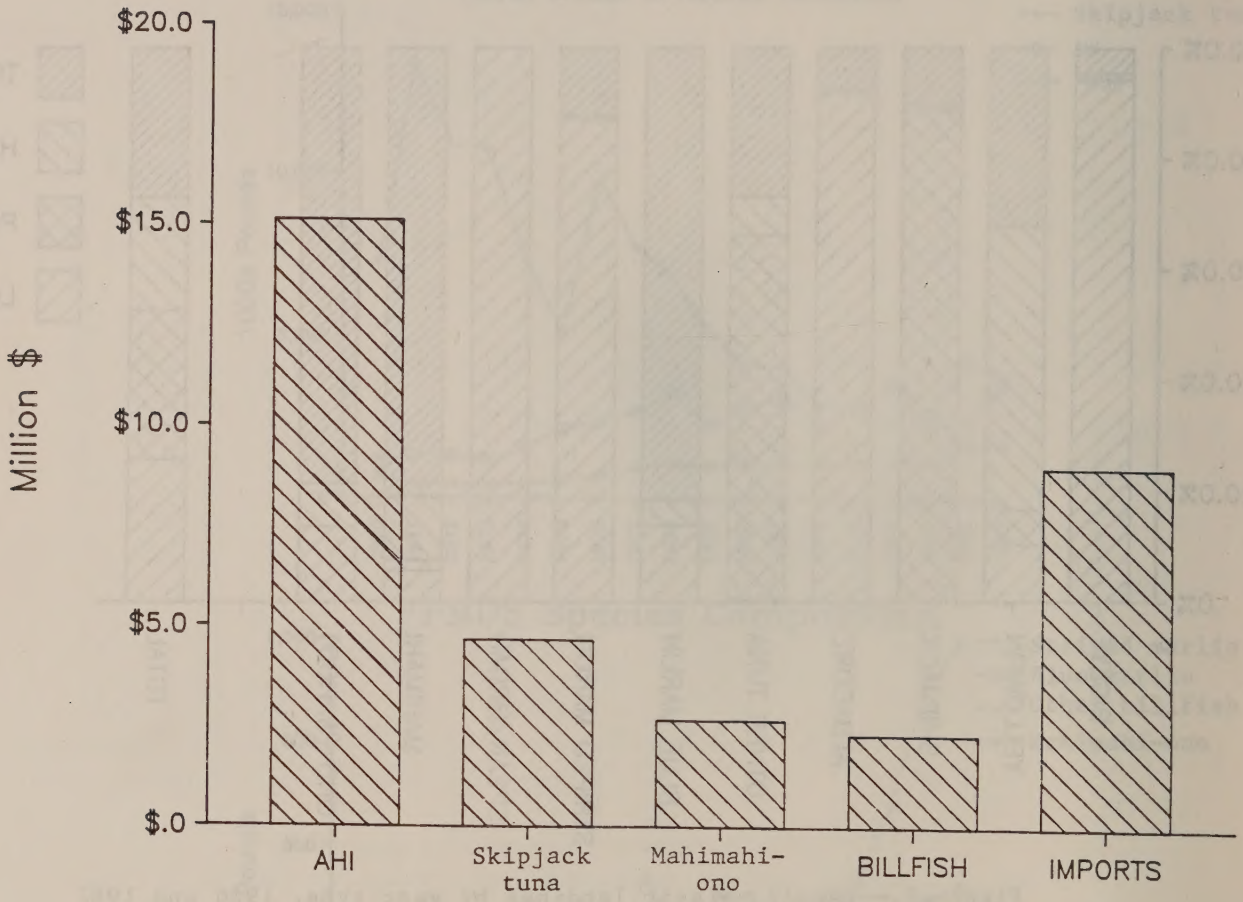

Figure 9.--Hawaii pelagic revenue, 1987 (including imports) (ahi = albacore, bigeye, and yellowfin tuna).